

**REMARKS**

1. Applicant thanks the Examiner for the Examiner's comments, which have greatly assisted Applicant in responding.

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2. **35 U.S.C. §112, second paragraph.**

Claims 1 and 15 are rejected under 35 U.S.C. §112, second paragraph, because the phrase "...any of, but not limited to..." is unclear as to determining what sequence of healthcare states or service codes are being limited to or selected from ...

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Applicant has amended Claims 1 and 15 accordingly. Therefore, Applicant is of the opinion that amended Claims 1 and 15 overcome the rejections and respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §112, second paragraph.

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3. **35 U.S.C. §103(a).**

(a) The Examiner rejected Claims 1-2, 7, 15, and 19 under 35 U.S.C. §103(a) as being unpatentable over Holloway et al (Holloway) U.S. 5,253,164, to Pendleton, Jr. (U.S. 6,253,186), in view of "Maximum likelihood continuity mapping for fraud detection" to Hogden.

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(i) Claim 15

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Claim 15 appears as follows:

15. (currently amended) A system for creating models of healthcare claims, comprising:

a database of healthcare claims, each claim including identification of a client, a provider, at least one procedure, and a date;

a data processing module that processes a set of the claims into [[a]] date-ordered, entity specific sequences of states by segregating by entity and for each entity sorting by date, then, responsive to sorting, determining states to be modeled, wherein said states are identified at levels based on a state hierarchy process, wherein each sequence comprises one or more states, and [,] wherein a state comprises any of, ~~but not limited to~~: facilities providing procedures to clients, services codes for healthcare procedures, healthcare providers, provider-days, and provider-service codes;

a transition processing module that determines, from the date ordered entity specific sequences, a transition metric for each transition between states, wherein said transition metric for each transition between states is based on frequency counts of a transition from a first state to a next state; and

an entity profiling module that generates profiles for at least one entity and a transition metric for one or more sequences of states related to the entity.

The Examiner admits that Holloway fails to teach the claimed data processing module that processes a set of the claims into a date-ordered, entity specific sequences of states, wherein a state comprises any of, but not limited to: facilities providing procedures to clients, services codes for healthcare procedures, healthcare providers, provider-days, and provider-service codes.

Per Pendleton, the Examiner stated that Pendleton teaches a claim file (26, Fig. 4) that includes healthcare states such as Health Care Procedure Code System (HPCPS) code, other codes, dates, units, pricing information, total dollar amount requested, or other information and cites Col. 6, lines 10-20.

(26, Fig. 4) is a Daily Claim file.

Col. 6, lines 10-20 appears as follows (emphasis added):

After construction of claim file 26, the system of FIG. 2 proceeds to the claim data preprocessing step (block 28). This process is illustrated in additional detail in the flow chart of FIG. 4. With reference to FIG. 4, claim data preprocessing begins by  
5 reading a claim line from daily claim file 26. This operation is represented by block 30 in FIG. 4. Each claim line comprises a number of different pieces of information or "elements". These elements may include the HCPCS code, other codes, dates, units, pricing information, total dollar amount requested, or other  
10 information.

Nowhere in such paragraph does Pendleton teach, suggest or contemplate processing a set of the claims into a **date-ordered entity specific sequence of states** as per the claimed invention.

Further, the Examiner stated that Pendleton further teaches that the claim file (26, Fig. 4) is sorted in a sort operation (46, Fig. 5) and the data is encoded in a claim data file (40, Fig. 4) (see: col. 6, lines 39-53).

(26, Fig. 4) is a Daily Claim file.

(46, Fig. 5) shows "Sort" for input encoded data, *i.e.* data which was present in lookup tables, and the sorted encoded data is in a claim file.

(40, Fig. 4) shows encoded claim data

Col. 6, lines 39-53 appears as follows:

If the subject line element of interest is present in the encoding lookup tables, the  
30 system stores the element in memory (block 38) and repeats the process for each

element in the line (block 39). If all elements of a line are found in the lookup tables, the system creates encoded claim data file 40 in a process represented by block 42. Following creation of the encoded record, the system determines whether additional records are to be processed (block 44). If so, the next line is read from daily claim  
5 file 26 and processed as described above. After each element of interest in every line stored in daily claim file 26 is processed, **the system proceeds with a sort operation represented by block 46 of FIG. 5. The data in encoded claim data file 40 is sorted (for example, by provider or supplier number) to produce sorted encoded claim file 48. Claim file 48 is used by the system as discussed below in**  
10 connection with FIG. 7.

Then, the Examiner stated that "The Examiner considers that since the claim file contains information such as claim dates and is sorted by a sort operation, this suggests that the claims are date ordered."

15 Applicant respectfully points out that the Examiner is not an inventor and cannot offer opinion to the prior art. Applicant points out that nowhere does Pendleton use "date" in the teachings **after** the sort operation, which is after the extraction. If Applicant is mistaken, Applicant respectfully requests that the Examiner **show** where date is part of  
20 Pendleton's teachings or is **suggested** for use **after** Pendleton's extraction and sort.

In stark contrast, Applicant points out that Pendleton **suggested provider or supplier number**, as in the above. Further, Pendleton's Figure 6, 82 **shows statistical screening of identified Providers and Suppliers**. Applicant is of the opinion that such supports  
25 Pendleton's **suggestion** of teaching only entitles such as **providers and suppliers**. Nowhere does Pendleton **suggest** that after extraction, date, and further **sorting by date**, is indeed taught or suggested.

In stark contrast, the claimed invention teaches very clearly processing "a set of the  
30 claims into a **date-ordered, entity specific sequences of states**".

Support can be found in Fig. 2 and accompanying pages 27-29, particular portions of which will be cited hereinbelow. To wit, the claimed invention is very clear that it first segregates by entity, then sorts claims by DOS, then identifies states, which states can be identified at different levels of hierarchy, then creates sets of state sequences, which sequences can comprise more than two states and, indeed, can be a long sequence, support of which appears below (emphasis added):

(On page 27 [0097] through page 28, line3)

We now turn to a discussion of a specific computational architecture for determining transition metrics. Reference is made generally to Fig. 2. The initial process 3001 is to ensure that claims become keyed on date-of-service (DOS) for each of the entities being followed; thus **process 3001 segregates a set of claims by entity, and then for each entity sorts the claims by date of service.** The entity of interest is usually the client as previously mentioned, but it could be represented by another entity.

**Once the claims are properly ordered,** the state process 3002 will then closely follow specific operational definitions in **determining the states** being modeled in preparation of the sequence information. The definitions, provided by a system monitor, define what fields, attributes or other aspects of a claim are to be identified as indicative of a state. The various examples described above for states are illustrative. **States can be identified at different levels according to a state hierarchy process 3002B.** For example, as previously discussed for the hospital inpatient setting, the category of treatment/condition combination of a client could be tracked at the fairly high level of the DRG or even at the even coarser level of the MDC. **This hierarchy process thus permits the flexibility of having states at various levels of bundling or unbundling.** The result of this step is a set of state

sequences, each sequence associated with an entity and having one or more specific states.

(On page 29, within paragraph [00104]

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A higher-order transition could also start with a single state and end with a sequence of states, e.g., (A, {C,D,E}). More elaborate versions of the higher order transitions can also be developed by induction, i.e. going from a sequence of more than two states and-or going to a sequence of more than two states, e.g. transitions from a long sequence to another long sequence as ((A,B,C,D,...), (W,X,Y,Z,...)).

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Nowhere does Pendleton teach or suggest state sequences having more than two states or long sequences. If Applicant is mistaken, Applicant respectfully requests that the Examiner show where such features of the claimed invention are taught or are suggested. Otherwise, Applicant respectfully requests that the Examiner take Office Notice and, again, show how such is justified.

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Finally, Applicant is of the opinion that the Examiner's construction is a hindsight construction and directs the Examiner's attention to the following in this regard:

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The CAFC has held, in *re* Zurko, CAFC 96-1258 (Serial No. 07/479,666), (15 April 1997) that Board of Appeals impermissibly used hindsight to arrive at the claimed invention, citing *W.L. Gore and Associates v. Garlock, Inc.*, id. at pp. 312-13 (Fed. Cir. 1983) as follows:

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To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

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Furthermore, the CAFC maintained that to say that a missing step comes from the nature of the problem to be solved begs the question unless the problem had been previously identified anywhere in the prior art, quoting the following excerpt from an  
5 earlier CCPA case (In re Sponnable, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969)):

[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified.  
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Further, it was held in *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780, 1783-84 (Fed. Cir. 1992):

“Obviousness cannot be established by combining the teachings of the prior art  
15 to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so.” (quoting *ACS Hosp. Systems, Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984))....The mere fact that the prior art may be modified in the  
20 manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.

And also held in *In re Fritch*, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992):

25 It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” (quoting *In re Fine*, 837 F.2d  
30 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988)).

Applicant has amended independent Claim 15 to further clarify the invention. Accordingly, Applicant is of the opinion that none of the prior art of reference, alone or in combination, teach, suggest, or contemplate all features of the claimed invention.

- 5 Therefore, Applicant is of the opinion that amended Claim 15 and the respective dependent claims are in condition for allowance. Hence, Applicant respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §103(a).

(ii) Claim 1

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The Examiner stated that Holloway fails to teach:

the claimed determining a sequence of healthcare states, wherein a healthcare state is any of, but not limited to a provider and a facility, for a client from healthcare reimbursement claims associated with the client and storing said sequence in any of:

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a data structure in a system database; and

in working memory, and

the claimed calculating a probability of the sequence of healthcare states based on previously calculated probabilities of individual ones of the healthcare states as contained in a model derived from a collection of healthcare data, and based on  
20 aggregated sequence probability information from previously processed individual sequence probabilities; and

the claimed identifying the sequence as potentially fraudulent as a function of the probability of the sequence wherein said probability of sequence is distinct.

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The Examiner cited every limitation of then Claim 1. Therefore, Holloway is an irrelevant reference by the Examiner's own admission.

If the Examiner is using the claim preamble for relying on Holloway, then Applicant respectfully points out that:

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If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999).

See also *Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation".

Applicant respectfully points out to the Examiner the relevant parts of Claim 1 which readily shows the body of Claim 1 fully and intrinsically sets forth all of the limitations, as follows (emphasis added):

Claim 1 appears as follows:

1. (currently amended) A computerized method of identifying potentially fraudulent healthcare reimbursement claims, comprising:

**determining a sequence of healthcare states, wherein a healthcare state is any of, but not limited to a provider and a facility, for a client from healthcare reimbursement claims associated with the client by segregating by entity and for each entity sorting by date, then, responsive to sorting, determining states to be modeled, wherein said states are identified at levels based on a state hierarchy process, and wherein each sequence comprises one or more states** and storing said sequence in any of:

a data structure in a system database; and  
in working memory, and

calculating a probability of the sequence of healthcare states based on previously calculated probabilities of individual ones of the healthcare states as contained in a model derived from a collection of healthcare data, and based on aggregated sequence probability information from previously processed individual sequence probabilities; and

**identifying the sequence as potentially fraudulent** as a function of the probability of the sequence wherein said probability of sequence is distinct.

Therefore, Applicant is of the opinion that Holloway is an irrelevant reference by the Examiner's own admission with respect to Claim 1.

Nevertheless, in view of the argument hereinabove for Claim 15, Applicant has amended Claim 1 to further clarify the invention.

Therefore, for the same rationale as for Claim 15 hereinabove, Applicant is of the opinion that none of the prior art of reference, alone or in combination, teach, suggest, or contemplate all features of the claimed invention. Therefore, Applicant is of the opinion that amended Claim 1 and the respective dependent claims are in condition for allowance. Hence, Applicant respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §103(a).

(b) The Examiner rejected Claims 3-5, 8-14 and 16-18 under 35 U.S.C. §103(a) as being unpatentable over Pendleton, Jr. (U.S. 6,253,186) in view of "Maximum likelihood continuity mapping for fraud detection" to Hogden.

Applicant has amended Claims 3, 8, and 9 using the same rationale as for Claims 1 and 15 hereinabove. Therefore, Applicant is of the opinion that none of the prior art of reference, alone or in combination, teach, suggest, or contemplate all features of the claimed invention. Therefore, Applicant is of the opinion that amended Claims 3, 8, and

9 and the respective dependent claims are in condition for allowance. Hence, Applicant respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §103(a).

3. It should be appreciated that Applicant has elected to amend the Claims solely  
5 for the purpose of expediting the patent application process in a manner consistent with the PTO's Patent Business Goals, 65 Fed. Reg. 54603 (9/8/00). In making such amendment, Applicant has not and does not in any way narrow the scope of protection to which Applicant considers the invention herein to be entitled. Rather, Applicant reserves Applicant's right to pursue such protection at a later point in time and merely  
10 seeks to pursue protection for the subject matter presented in this submission.

**CONCLUSION**

5 . Based on the foregoing, Applicant considers the present invention to be distinguished  
from the art of record. Accordingly, Applicant earnestly solicits the Examiner's  
withdrawal of the rejections raised in the above referenced Office Action, such that a  
Notice of Allowance is forwarded to Applicant, and the present application is therefore  
allowed to issue as a United States patent. The Examiner is invited to call to discuss  
10 the response. The Commissioner is hereby authorized to charge any additional fees  
due or credit any overpayment to Deposit Account No. 07-1445.

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Respectfully Submitted,



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